

PhysicianUpdate

NEWS FOR PHYSICIANS FROM JOHNS HOPKINS MEDICINE

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Worthy of Note

Capsule Endoscopy

It's been around for a couple of years, but only recently has PillCam, the multivitamin-size capsule armed with a tiny camera, been able to transmit images in real time at any point during its eight-hour journey through the GI tract. What's more, Gerard Mullin, director of capsule endoscopy, can review the images by logging into a system based in Hopkins' computer servers from anywhere in the world.

Mullin has come to appreciate the ingestible camera's diagnostic assist. With it, he's found conditions such as celiac disease and Crohn's. And though the images currently are not quite high-resolution, Mullin believes they routinely detect GI bleeding that might otherwise be missed.

☎ 410-955-4166 to refer a patient.

Breast Center at Green Spring

With the exception of surgery, all services offered downtown at the Johns Hopkins Breast Center now are available to patients at the new Breast Multidisciplinary Cancer Clinic at Green Spring Station, which opened on Feb. 5.

Newly diagnosed patients can, within 48 hours, see a surgical oncologist, radiation oncologist and patient educator on the same day. If imaging studies are required, patients can get a mammogram or breast ultrasound within 24 hours; biopsy and breast MRI, in one week. Within four weeks, patients can see a medical oncologist and/or a plastic surgeon. "All investigational trials available at Johns Hopkins are available to patients," says radiation oncologist Fariba Asrari.

The breast cancer clinic is open on Tuesdays, Thursdays and Fridays at Green Spring Station, Pavilion II, suite 145.

☎ 410-502-8001 to refer a patient.

A One-Day Pancreatic Cancer Clinic

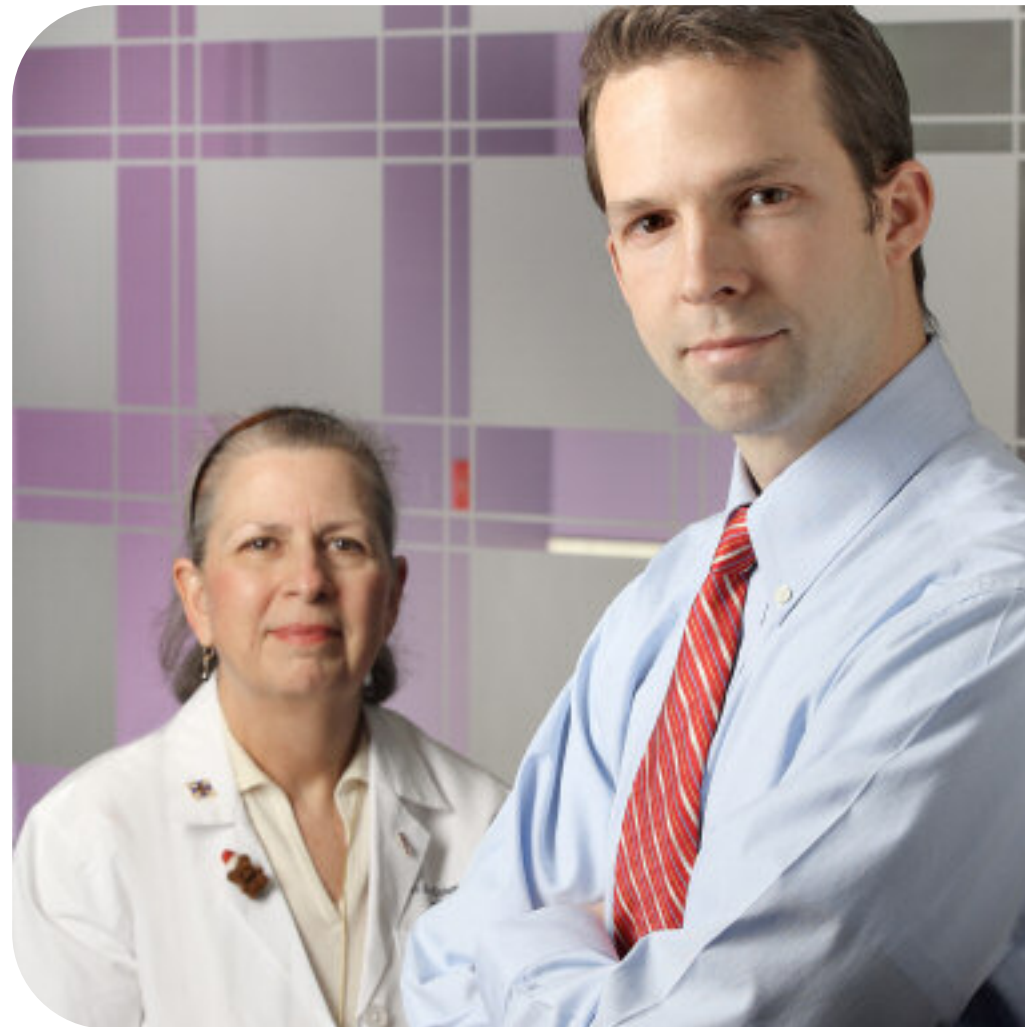
Every Tuesday morning, six patients are seen at the pancreatic cancer clinic. At the end of the day, they go home with a comprehensive treatment plan in hand.

While weekly, multidisciplinary tumor boards reviewing select oncologic cases are nothing new at the Kimmel Cancer Center at Johns Hopkins, a single-site, single-day cancer clinic is quite uncommon. In its first 11 months of operation, ending in October of last year, the pancreatic cancer clinic saw 200 patients. Remarkably, the clinic's findings—most involving cancer stage or diagnosis—were different from the patients' outside institutions' 24 percent of the time.

Here's how the clinic works: Patients have lab blood work and CT scans done, then assemble for an overview of support services delivered by social workers, nutritionists, genetics counselors and others. Next, they are examined by clinicians from surgery, medical oncology and radiation oncology who prepare a one-page summary report.

At noon, the reports are distributed at a case conference to the multidisciplinary team—about 50 people in all. A surgeon, medical oncologist, radiation oncologist, pathologist and radiologist review patient information, imaging and pathology and reach a consensus on a treatment plan. Finally, the plans are discussed with each patient, and when appropriate, patients are offered access to innovative clinical trials. "We actually come to the patient with one consensus. If they saw each one of us individually, it would be very confusing," says clinic director Joseph Herman, assistant professor of radiation oncology.

Most of the discrepancies between the



Joe Herman with clinic coordinator, nurse practitioner Joann Coleman.

clinic's findings and those of the outside institutions, Herman says, result from reviews of pathology and CT imaging. So for example, some who believed their tumors were unresectable discovered they were actually surgical candidates. Others were found to have previously unsuspected metastases. "While that's unfortunate," says Herman, "we saved a lot of morbidity from unnecessary treatment

like surgery, chemo or radiation."

Herman conceived of the clinic as a way to harness the expertise that exists at a high-volume pancreatic center like Johns Hopkins. "It can take patients weeks to see any one of our specialists," he says. "Now we come to them, all on the same day."

☎ 410-502-8000 for an appointment, path.jhu.edu/pancreas/MDC/index.html.

Inside



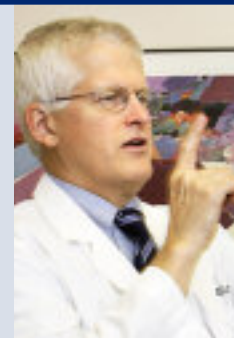
2

New Imaging Subspecialties



3

Excellent Outcomes with Heart Valve Repair



4

Deep Brain Surgery for Parkinson's— and More



John Carrino, section chief of musculoskeletal radiology.



Thierry Huisman, new chief of the Division of Pediatric Radiology.

RADIOLOGY

Two New Imaging Subspecialties

If two developments here at Johns Hopkins are any indication, the trend to increasing subspecialization in radiology appears to be continuing apace. Musculoskeletal and pediatric radiology, once loosely organized, now are bona fide subspecialties, each with their own chief.

John Carrino came from Harvard, where he was clinical director of interventional MRI at Brigham and Women's Hospital, to direct the newly established section of musculoskeletal radiology.

The section provides multimodality diagnostic imaging and image-guided interventional services in areas including sports medicine, tumors and arthritis. It represents a departure for the Department of Radiology, which historically has been organized around individual modalities instead of organ systems or disease processes, notes Carrino. "This has been particularly true at Hopkins, which has always had the innovators, the early adopters, and the latest and greatest technology."

Not that that has changed. Carrino helped to bring in a 3T field strength, 70 cm wide, open-bore MRI, the first of its kind, which can accommodate large people like professional athletes and others who for various reasons such as claustrophobia cannot tolerate standard MRI. "We are attempting to reduce the health care disparities that may exist for patients who had to settle for lower quality, con-

ventional open imaging," says Carrino.

Using new magnets with specialized coils, the musculoskeletal team now can provide high-quality images of the small joints—hands, wrists, feet and ankles—and cartilage, body parts that have heretofore eluded detailed depiction. Other subspecialty services include ultrasound for joint and tendon therapies, functional joint imaging (made possible by a 320-slice CT scanner, another first of its kind), MR arthrography and MR neurography. Specialized services like these are offered at Hopkins Hospital and Johns Hopkins Bayview Medical Center. "Just as providers might refer patients to Hopkins to see subspecialty clinicians, so should they consider referring patients for subspecialty imaging when needed," says Carrino.

Using state-of-the-art teleradiology technology, musculoskeletal radiology also delivers subspecialty musculoskeletal image interpretation to community imaging facilities and referring physicians through a partnership with American Radiology Services.

☎ 410-502-2831 to refer a patient; <http://msk.rad.jhmi.edu>, for info.

Thierry Huisman, who arrived in October from University Children's Hospital Zurich, Switzerland, is the director of Johns Hopkins' growing Division of Pediatric Radiology.

Huisman is leading a team of radiologists who, odd as it may sound, try not to use radiation. They avoid ordering plain film or CT when possible to spare young bodies from the harmful effects of ionizing radiation.

Huisman's goals are to create an increasingly child-friendly setting and bring in more equipment specially designed for

children: MR with small-diameter coils; CT with software that reduces radiation dose; an MR diagnostic incubator for newborns and preterm neonates, safer because all preparation takes place in the NICU, sparing the infant from having to be moved while in the MRI suite.

Prenatal diagnostics are chief among Huisman's own interests, and he is planning to work on the fetal MRI program. "This is an area where the expertise of the pediatric radiologist is absolutely necessary because many radiologists are unfamiliar with diseases in utero. Furthermore," Huisman adds, "the techniques are now so refined that we can diagnose many conditions and malformations intrauterine. We can piece together various small findings. That allows us to counsel the parents, guide the pregnancy and delivery, plan the first hours of life after birth and provide more reliable prognoses to functional outcomes."

Huisman also specializes in neuroradiology—the use of advanced imaging to diagnose, for example, metabolic diseases of the brain, but he is quick to explain that his division's services span the full range of body parts and disease processes in children up to age 18.

"Physicians can refer any case in which imaging can help with a diagnosis or narrow the differential diagnosis. Because we are trained as pediatric radiologists, they can expect the best radiological expertise focused on children."

☎ 410-955-6140 to refer a patient.

NEUROLOGY

HIV's Overlooked Manifestation

In the United States today, HIV is the biggest cause of viral infections of the central nervous system. At Johns Hopkins, special expertise exists in HIV's neurological manifestations, such as dementia, peripheral neuropathy, opportunistic infections, and one of the most under-recognized complications, immune reconstitution syndrome, which with the advent of antiretroviral therapy, has become increasingly prevalent.

"As the immune status improves following treatment with antiretrovirals, the brain can become a target of the immune reconstitution," explains Avindra Nath, director of the Division of Neuroimmunology and Neurological Infections. The newly reconstituted immune system can trigger a severe inflammatory reaction that can be mistaken for disease progression.

One patient, for example, was faithfully taking her prescribed medications. Her viral load was going down; her CD4 counts, up. Oddly, she became desperately ill. "We treated her with steroids, and she dramatically improved," Nath recalls.

Immune reconstitution syndrome should be suspected in those who deteriorate following the initiation of antiretroviral therapy but who improve in CD4 cell count and viral load, Nath says. "We are very keen to see these patients and optimize their treatment"

☎ 443-287-4656 to refer a patient.



David Yuh uses a minimally invasive approach—now without the robot.

Realizing Excellent Outcomes in Heart Valve Repair

A month's worth of intravenous antibiotics may have cured a serious blood infection, but the therapy left Michael Beer with a damaged heart valve. Suddenly, the Johns Hopkins University professor emeritus of biophysics found himself a candidate for heart surgery.

But Beer got lucky. He was referred to David Yuh, a specialist in minimally invasive valve repair whose outcomes are as good as, if not better than, those of any other comparable program in the country. In Yuh's hands, hospital stays average four days instead of the one week that's typical with the conventional open procedure. Patients return to work or normal activity in two weeks as opposed to six to eight. They have fewer wound complications and more desirable cosmetic outcomes.

As for Beer, he fairly sailed through the surgery—even though he is 81 years old. “Afterwards, there was no waiting while bones healed. In three weeks, I was driving and walking a mile each day. My recovery was astonishingly easy and rapid,” says Beer, adding that he may even get back on the ski slopes.

Working exclusively with a team of cardiac anesthesiologists and specially trained nurses, Yuh performs between five and 10 minimally invasive mitral valve repairs each month. There is little margin for error, for the incision is only one-third the size of that used in a conventional sternotomy.

“You really can't make a mistake. If something untoward happens, you may not have the accessibility to deal with it. You have to be very deliberate, very precise. This operation puts a lot of stress on us all,” says

Yuh, “but the results are so promising that we're going to push forward no matter how difficult it is.”

Interestingly, for this procedure, Yuh has stepped back from the very technology he once championed: the surgical robot. “After a while, I found out that I really didn't need the robot. Without the machine between me and the patient, the operation takes about two and a half to three hours. With the robot, it often takes between four and five hours. That's just too long for patients to be on bypass.”

Yuh, however, continues to research the development of robotic tactile feedback capabilities. While the da Vinci robotic device plays a role in other surgical subspecialties—and it's taken center stage in prostatectomies—in cardiac surgery, where time is of the essence, the technology is literally not up to speed. “It will catch up,” says Yuh, “but now it's not where I want it to be. Most cardiac robotic surgeons have realized that its applications are limited.”

Yuh also uses a minimally invasive approach to repair or replace aortic and tricuspid valves, close atrial septal defects and remove cardiac tumors. “We are seeing accelerated recoveries and lower complication rates in these cases as well,” he says.

Some patients are not good candidates for the surgery. They may have, say, poor heart function or certain serious medical problems. “For these patients, we often propose a standard approach because we don't want to expose them to added risks. Right now, we want to validate this minimally invasive approach under good circumstances, although,” Yuh adds, “we are beginning to offer it to more challenging patients.”

☎ 410-955-9780 to refer a patient.

Put to the Test: A Biologic Agent for Premalignant Lesions

Precancerous lesions of the mouth and throat pose a significant challenge for head and neck cancer surgeons. The lesions stand a 40 percent to 70 percent chance of becoming malignant over five to 10 years, and interventions like surgery, radiation and chemotherapy have not improved outcomes.

Now, the Department of Otolaryngology-Head & Neck Surgery, along with the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, is coordinating the first clinical trial of cetuximab treatment in patients with high-risk, premalignant upper aerodigestive tract lesions.

A novel therapeutic agent directed at a specific biologic pathway, cetuximab (Eribitux) targets a natural protein, epidermal growth factor receptor (EGFR), on the surface of cancer cells and interferes with their growth. It has none of the side effects of radiation and chemo and is currently being used to treat head and neck, lung and colon cancer.

In patients with head and neck cancer, cetuximab has been shown in multicenter trials to improve sur-

vival. “Now we want to see how this drug works in people with *precancerous* conditions,” says surgeon Joseph Califano, principal investigator.

The trial is enrolling three groups of patients: those with high-grade precancerous lesions that are diffuse and unresectable, those previously treated for head and neck squamous cell cancer with recurrent high-grade dysplasia, and those with dysplastic lesions.

Participants in the treatment arm will receive weekly cetuximab injections for eight weeks. At the end of the study period, patients in the recurrent and dysplastic groups will undergo lesion resection based on the extent of initial disease.

Participants in the control arm will be followed during the eight-week period and then can move to the treatment arm and receive the drug. All will be followed for two years. “If it works,” says Califano, “it could be the start of a new therapy we'd be able to offer our patients.”

Info: Joseph Califano, 410-955-6420; study coordinator Zubair Khan, 410-955-3157 (office), 410-283-6045 (pager), zkhan@jhmi.edu.



Joseph Califano is testing cetuximab in people with precancerous lesions of the mouth and throat.

Deep Brain Stimulation for Movement Disorders—and More

Parkinson's disease is caused by a deficiency of dopamine, a chemical that transmits signals between nerve cells. In 1988, when a Hopkins team discovered that the deficiency led certain brain cells to be over-stimulated, not under-stimulated as was previously believed, it became clear that over-active cells could be addressed surgically.

In 1997 deep brain stimulation, or DBS, a procedure that had almost disappeared after the introduction of the drug L-dopa around 1965, was approved in the United States for movement disorders.

Now DBS is a standard of care for Parkinson's, but it also has broad implications for conditions as diverse as obsessive compulsive disorder, obesity and psychiatric disease—especially depression. With its team of neurosurgeons and fellowship-trained neurologists, Johns Hopkins is a leading center for DBS in the United States and well positioned to pursue these powerful new treatments.

Candidates for DBS undergo a rigorous selection process carried out by a team of occupational, physical and speech/language therapists, neuropsychiatrists and neuropsychologists—all experts in Parkinson's. This detailed clinical assessment is overseen by Zoltan Mari, a movement-disorder neurologist.

Performing the operation is neurosurgeon Fred Lenz. A thin insulated wire, or electrode, is inserted through a small opening in the skull and positioned within the targeted brain area, usually the subthalamic nucleus. As with a cardiac pacemaker, an insulated wire is passed under the skin and connects the electrode with a neurostimulator, a battery-run power pack implanted under the skin, usually near the collarbone. The generator sends a steady stream of low voltage to the brain, blocking the electrical signals that cause symptoms.

Lenz was instrumental in reintroducing DBS to neurosurgery after its hiatus. He refined microelectrode recording, an extraordinarily sensitive brain-mapping system which, in



Fred Lenz evaluates Parkinson's patient Martha Kowal for deep brain stimulation.

DBS, allows surgeons to precisely target specific groups of brain cells.

Lenz's team has performed more than 400 DBS procedures. "While DBS was once used only in relatively advanced cases of Parkinson's, we are now taking patients earlier in the course of the disease," Lenz says.

In Lenz's hands, involuntary movements improve significantly in 90 percent of patients. Gait improves in 70 percent to 80 percent. "Almost everyone gets at least a 50 percent reduction in medicine; some can stop taking their drugs completely," says Lenz. "The risk of infection is 1.5 percent. The risk of a bleed is 1.5 percent. Of that group, less than 1 percent will have a serious hemorrhage. It's up to the patients to decide whether the problems are significant enough to take the small but present risks of the procedure in order to achieve those results."

☎ 410-955-2257 to refer a patient.

Your Vital Links

Johns Hopkins Medicine offers the following links to physicians in the surrounding community. We also urge M.D.s to use our Physician Liaison Service to offer suggestions and comments. Good communication, we believe, is vital.

Hopkins Access Line (HAL): Physician-Only Line for Consultations, Referrals and Patient Transfers

1-800-765-5447 (Continental United States)

410-955-9444 (Baltimore area and international calls)

Online Referral Directory

hopkinsmedicine.org/referraldirectory

Physician Liaison Service:

1-800-759-7734 (Continental United States)

410-502-2737 (Baltimore area and international calls) jhmcares@jhmi.edu

CME Program Information

hopkinscme.net

Information: 410-955-3169

Fax registration: 410-955-0807

E-mail: cmenet@jhmi.edu

Johns Hopkins USA:

For Out-of-State Patients

443-287-6585. Ask for Hopkins USA:

HUSA@jhmi.edu

hopkinsmedicine.org/hopkinsusa/

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hopkinsmedicine.org/usfhp/

Clinical Trials Information

hopkinsclinicaltrials.com/

Kimmel Cancer Center

Clinical Trials

hopkinskimmelcancercenter.org/clinicaltrials

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